On some species of the genus Meliola.

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Meliola tenuis B. & C.

A fungus was distributed under the above name by Ravenel[1] on leaves of Arundinaria from Darien, Ga., but no description was given. It is mentioned by Cooke,[2] who merely remarks: "Scarcely different from *Meliola amphitricha.*" It is mentioned by Saccardo[3] under the heading "*Species mihi minus notæ*", where he simply quotes Cooke's remark as given above. It is next mentioned by Martin[4] as Ravenel's no. 330. He gives no description, but says: "This appears to be *M. amphitricha* Fr.

In the *Supplementum Universale* Saccardo[5] publishes a description for the first time. It is as follows: "*Meliola tenuis* B. & C., Ravenel, Fungi Amer. Exsic. *no. 831* (without description).—Epiphyllous, forming small, black, hairy, suborbicular spots; perithecia globose, covered with rigid, straight, sharp-pointed setæ; asci 2–4-spored, ellipsoid; sporidia oblong, 50×18–20μ, 4-septate, slightly constricted, extremities rounded, fuliginous; pycnidia present, smaller than the perithecia; stylospores oblong, 1-septate, multiguttulate, hyaline, 25–26×6–7μ." This description would certainly justify the remarks of Cooke and Martin, that it was near to or identical with *M. amphitricha* Fr.

Gaillard[6] in his admirable monograph places *M. tenuis* B. & C. among "*species dubiæ.*" After quoting Saccardo's description he makes the following remarks: "We have examined authentic specimens from Ravenel's no. 831. They offer the following characters: Spots pulverulent, of a deep black brown color. Mycelium formed of moniliform cells of a pale fuliginous brown, bearing occasionally little spherical swellings, from which globular, thin-walled, sterile conceptacles

[1] Ravenel, Fungi Americani Exsiccati *no. 331.*
[2] Cooke, Ravenel's American Fungi, Grevillea—: 49. D.1878.
[3] Saccardo, Sylloge Fungorum **1:** 70. Je.1882.
[4] Martin, Synopsis of the North American species of Asterina, Dimerosporium and Meliola, Jour. of Mycology **1:** 148. D.1885.
[5] Saccardo, Sylloge Fungorum **9:** 428. S.1891.
[6] Gaillard, Le Genre Meliola; Anatomie, Morphologie, Systematique 117. 1892.

develop. Mycelial setæ very abundant, acicular, thin (200 ×6μ), of a clear fuliginous brown, with numerous septa. The moniliform mycelium, the absence of hyphopodia and of spores cause us to place this plant among the doubtful species."

Ravenel's specimens seem to be the only ones known of this fungus. Some confusion exists in quoting his numbers, they being variously given as 330, 331 and 831. These seem to be simply misprints of the same number. The specimen in the herbarium of the Division of Vegetable Physiology and Pathology of the U. S. Department of Agriculture is certainly Fungi Amer. Exsic. *no. 331.*

In the fall of 1893 I was fortunate enough to collect this little-known species on *Arundinaria tecta* at Ocean Springs, Miss. The characters found in these specimens differed so markedly from any described species that I was inclined to think it new, since they afforded the combination of such distinctive marks as the divided tips of the setæ and the conspicuously lobed apical cell of the capitate hyphopodia. I find, however, that it agrees exactly with Ravenel's specimen Fungi Amer. Exsic. no. 331, as represented in the herbarium here.

Saccardo's description is incorrect as to the setæ and he does not mention the hyphopodia at all. The specimens examined by Gaillardwere evidently very imperfect or immature.

The following description is taken from Ravenel's specimen no. 331 in the herbarium of the Division of Vegetable Physiology and Pathology, and from the Mississippi specimens. It is believed to give the true characters of the species:

MELIOLA TENUIS B. & C., nov. desc.—Amphigenous, covering small (2–3^{mm}) black orbicular or at length confluent areas: conidia-bearing mycelium light fuliginous, somewhat flexuous, branched, frequently septate, not constricted at the septa, 6–7μ thick; conidia not observed: perithecia-bearing mycelium abundant, dark fuscous, irregularly flexuous and nodular, frequently septate, 8–9μ thick: capitate hyphopodia abundant, alternate, about 20–25μ long; basal cell short-cylindrical about 8 × 8μ; apical cell broader, usually irregularly but distinctly three or four lobed, 12–15 × 12–20μ; setæ abundant, rigid, dark and opaque, 200–400 × 10μ, acute, the tip often bifid, trifid, or occasionally 4-parted for a distance of 10–20μ: asci ovate, thin-walled, often evanescent, 2–4-spored, 50–70 × 35–40μ: sporidia dark fuscous, 4-septate,

constricted at the septa, ends obtusely rounded, 50–60μ long, somewhat flattened, seemingly elliptical, 18–20μ wide in front view, but cylindrical and 12–15μ wide in side view.—On living leaves of Arundinaria, Georgia and Mississippi.

Notes on specimens of Meliola.

Perhaps no group of fungi is in greater confusion in most American herbaria than the species of Meliola and their allies in the other genera of the Perisporiaceæ. This is largely attributable to the fact that the specimens of so many published exsiccati are incorrectly named. Having recently had occasion to examine the specimens in the herbarium of the Division of Vegetable Physiology and Pathology of the U. S. Department of Agriculture, the following notes may prove of general interest:

Meliola amphitricha Fr., Bonin Islands, U. S. North Pacific Exploring Expedition.—This is mentioned by Gaillard[7] among the forms which he refers to *M. amphitricha* Fr., but this specimen differs from his description in the much smaller (only 16 × 12μ) capitate hyphopodia, which often have the apical cell conspicuously lobed, and in the evident false ostiolum of the perithecium. The sporidia also differ in being strictly cylindrical (not elliptical), with the rounded apical cells longer than the rather short medial ones.

Meliola amphitricha Fr., on *Callicarpa americana*, Gainesville, Florida, Ravenel: Fungi Amer. Exsic. *no. 84.*—This is *Meliola cookeana* Speg. It is the same as N. A. F. *no. 1295.*

Meliola amphitricha Fr., on *Gordonia lasianthus*, Louisiana, 1885, coll. Dr. Palmer (herb. no. 1785).—This is *Meliola cryptocarpa* E. & M., and is the same as N. A. F. *no. 1293.*

Meliola amphitricha Fr., on *Laurus carolinensis*, Houston, Texas, 1869, coll. H. W. Ravenel, no. 116*a*.—This is not a Meliola, but is *Asterina dillitescens* E. & M.

Meliola amphitricha Fr., on *Laurus carolinensis*, Ravenel: Fungi Caro. *no. 70.*—This is *Meliola martiniana* Gaillard.[8]

Meliola amphitricha Fr., on *Persea palustris*, Green Cove Springs, Florida, March, 1883, Dr. Martin, N. A. F. *no. 1296.*—This is the type of *Meliola martiniana* Gaillard.[9]

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[7] Gaillard, A., Le Genre Meliola 77. 1892.
[8] L. c. 68.
[9] L. c. 68.

Meliola amphitricha Fr., on Persea, Gainesville, Florida, Fungi Amer. Exsic. *no. 82.*—This is not a Meliola. Our specimen has no perithecia, but it is doubtless *Asterina dillitescens* E. & M.

Meliola amphitricha Fr. var. *palmarum* Berk., on *Phoenix dactylifera*, Calcutta, India, Thüm. Mycotheca Universalis *no. 2155.*—This is referred by Gaillard[10] to *Meliola palmicola* Wint. Our specimen while it agrees with the usual form of this species on Sabal in the long, often three-celled hyphopodia, does not show the divided tips of the setæ.

Meliola amphitricha Fr., on Sabal, Gainesville, Florida, Ravenel: Fungi Amer. Exsic. *no. 81.*—This is *Meliola palmicola* Wint.

Meliola camelliæ (Catt.) Sacc., on *Camellia japonica*, Italy, Briosi e Cavara *no. 106.*—This, like the other "sooty molds" following insect injuries, does not at all present the characters of a true Meliola, and I quite agree with Gaillard[11] in excluding them. It is likely that all these true saprophytic forms should be referred to Capnodium, even if the ordinarily accepted definition of that genus has to be extended to include them. They form a natural group and so do the true Meliolas, but they have little in common.

Meliola furcata Lév., Ellis N. A. F. *no. 1297*, (*a*) on *Bignonia capreolata*, Florida, Dr. Martin; (*b*) on Gonolobus, North Carolina, Dr. Thos. F. Wood; (*c*) on *Sabal serrulata*, Florida, Dr. Martin.—Both (*a*) and (*b*) are *Meliola bidentata* Cke. Gonolobus is a new host for this species, but the specimen agrees exactly with the description given by Gaillard[12] and with the specimens on Bignonia; (*c*) is *Meliola Palmicola* Wint.

Meliola furcata Lév., on Bignonia, Gainesville, Florida, Ravenel: Fungi Amer. Exsic. *no. 330.*—This also is *Meliola bidentata* Cke., and is perfectly distinct from *M. furcata* Lév. which is represented in the herbarium by the N. Pacific Exploring Expedition specimen collected by Wright in Nicaragua, but which has not been found in the United States.

Meliola heteromeles (C. & H.), N. A. F. *no. 1546.*—Our specimen seems to be all Capnodium. I find nothing to indicate either Meliola, Meliopsis or Zucalia, where it has been variously placed.

[10] L. c. 101.
[11] L. c. 123.
[12] L. c. 106.

Meliola MacOwaniana Thüm., Mycotheca Universalis *no. 568.* — This is *Dimerosporium Mac Owanianum* (Thüm.) Sacc.[13] The sporidia are only two-celled.

Meliola penzigi Sacc., Briosi e Cavara *no. 135.*—This too is Capnodium, not Meliola.[14]

Meliola psilostomæ Thüm., Mycotheca Universalis *no. 775.* —This is *Dimerosporium psilostomatis* (Thüm.,) Sacc.[15]

Meliola quinquespora Thüm., Mycotheca Universalis *no. 657.*—This is referred by Gaillard[16] to *Meliola inermis* Kal. & Cke.

Meliola sanguinea E. & E., on *Rubus trivialis*, Pointe à la Hache, Louisiana, Jan. 5, 1886, A. B. Langlois.—This is considered by Gaillard[17] to be the same as *Meliola manca* E. & M., which also occurs on Myrica (see N. A. F. *no. 1292.*

Meliola (young), on Ilex, Harris co., Texas, H. W. Ravenel.— This is not Meliola, but *Asterina pelliculosa* Berk. Another specimen on Ilex from Galveston, Texas, collected by Ravenel in 1869, has two leaves like the above showing nothing but *Asterina pelliculosa* Berk., while a third leaf bears a good Meliola, perhaps *M. amphitricha* Fr.

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[13] Saccardo, Sylloge Fungorum 1: 53.
[14] Gaillard, l. c. 123.
[15] Saccardo, Sylloge Fungorum 1: 54.
[16] Gaillard, l. c. 123.
[17] Gaillard, l. c. 37.